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EXAMINER	
THOMPSON, JAMES A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/769,330	OHTA, KENICHI	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-19 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-19 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 26 January 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "switches a logical arithmetic operating process of flag values..." is confusing as written in the claim. Based on the specification and the overall claim language, Examiner assumes for the purposes of prior art rejections that Applicant means "switches between a logical arithmetic operating process of flag values..." since there three methods listed in claim 16 between which the second pixel density converting means can be switched.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 7, 9-11 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810).

Regarding claims 1, 17 and 18: Sakai discloses an image processing apparatus (figure 5 of Sakai). Further details of said apparatus are shown in figure 9 (column 3, lines 35-36 of Sakai), figures 24-26 (column 4, lines 7-14 of Sakai) and figure 32 of Sakai (column 4, lines 30-31 of Sakai).

Said apparatus comprises input means (figure 32(65) and column 15, lines 13-17 of Sakai) for inputting image data (column 5, lines 27-29 of Sakai).

Said apparatus further comprises a first storage means (figure 10C("Bitmap Data") of Sakai) for storing the image data (column 7, lines 8-10 of Sakai). Said first storage means corresponds to the section of computer memory used to store the bitmap data, as shown in figure 10C of Sakai.

Said apparatus further comprises means (figure 5(11) of Sakai) for obtaining flag data indicating an attribute (column 6, lines 15-18 of Sakai) of an image corresponding to the image data from the image data (figure 6 and column 6, lines 21-26 of Sakai).

Said apparatus further comprises second storage means (figure 10C("Attribute") of Sakai) for storing the generated flag data (column 7, lines 1-5 of Sakai). Said second storage means corresponds to the section of computer memory used to store the attribute data, as shown in figure 10C of Sakai.

Said apparatus further comprises compressing means (figure 9(20) of Sakai) for compressing the image data (figure 10C("Bitmap Data") of Sakai) stored in said first storage means and the flag data (figure 10C("Attributes") of Sakai) stored in said second storage means (column 6, lines 43-44 and column 7, lines 1-9 of Sakai). Said compressing means compresses the document image data (column 6, lines 43-44 of Sakai). Said document image data is comprised of the image bitmap data and attribute data (column 7, lines 1-9 of Sakai), as shown in figure 10C of Sakai.

Said apparatus further comprises third storage means (figure 9(22) of Sakai) for storing the image data and flag data compressed by said compressing means (column 6, line 45 of Sakai).

Said apparatus further comprises decompressing means (figure 9(23) of Sakai) for decompressing the image data and flag data read out from said third storage means (column 6, lines 45-47 of Sakai).

Said apparatus further comprises first pixel density converting means (figure 32 (61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the image data decompressed by said decompressing means at a designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). Said first pixel density converting means corresponds to the section of the CPU (figure 32(61) of Sakai), along with the associated embodied computer programs (column 15, lines 17-20 of Sakai), that perform the functions of said first pixel density converting means.

Said apparatus further comprises second pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the flag

data decompressed by said decompressing means at same magnification as the designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). The partial image, which includes the attribute (flag) data (figure 10C of Sakai), is displayed at a specified magnification (column 8, lines 57-62 of Sakai). Therefore, said flag data is decompressed at the same magnification as the designated magnification since said flag data is directly associated with said partial image data. Said second pixel density converting means corresponds to the section of the CPU (figure 32(61) of Sakai), along with the associated embodied computer programs (column 15, lines 17-20 of Sakai), that perform the functions of said second pixel density converting means.

Said apparatus further comprises output means (figure 5(14) of Sakai) for making a process of the pixel density converted image data (column 5, lines 40-45 of Sakai) different every pixel in accordance with the flag data (column 5, lines 47-53 of Sakai) and outputting the processed image data (column 5, lines 40-41 of Sakai).

Sakai does not disclose expressly that said flag data is generated by a generating means; and that said image data input is color image data.

Kanno discloses generating means (figure 1(10) of Kanno) for generating data indicative of the attribute of an image corresponding to the image data (column 6, lines 35-38 and lines 40-45 of Kanno); and that said image data is color image data (column 9, lines 51-54 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to process color image data and

generate the data indicative of the attributes of an image, as taught by Kanno, said indicative data being the flag data taught by Sakai. The motivation for doing so would have been that the value of the parameter used to determine the feature of the image region can be used in determining the amount of correction required (column 6, lines 58-62 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai to obtain the invention as specified in claims 1, 17 and 18.

Further regarding claim 7: Kanno discloses that said generating means generates the flag data (column 6, lines 40-45 of Kanno) on the basis of a change (ΔD_{max}) in image data of a pixel near a target pixel (column 6, lines 35-40 of Kanno).

Regarding claim 9: Sakai discloses that said second pixel density converting means performs a resolution conversion suitable for binary data (column 8, lines 57-62 of Sakai). A resolution conversion of 1/2, 1/4 or 1/8 (column 8, lines 57-62 of Sakai) is suitable for binary data since said resolution conversion is used to display the partial image data (column 8, lines 52-55 of Sakai).

Regarding claim 10: Sakai discloses that said output means makes a binarization process to the image data different in accordance with the flag data (column 8, lines 55-59 of Sakai).

Regarding claim 11: Sakai does not disclose expressly that, when said flag data is the character flag or figure flag, an error diffusion process is performed to the image data.

Kanno discloses performing error diffusion on image data when said image data is a character or figure (line image) (column 5, lines 55-60 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform error diffusion based the image region being a character or figure region, as taught by Kanno. The motivation for doing so would have been to preserve the resolution of the characters and/or lines of the figures (column 5, lines 58-60 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai to obtain the invention as specified in claim 11.

Regarding claim 15: Sakai discloses that said second pixel density converting means makes a converting method different in accordance with attributes of said flag data (column 8, lines 52-57 of Sakai).

Regarding claim 16: Sakai discloses that said second pixel density converting means performs a logical arithmetic operating process of flag values of a plurality of pixels near a target pixel (column 4, lines 40-45 of Sakai). A partial image is extracted as part of a document image based on the attributes (flag values) of said partial image (column 4, lines 40-45 of Sakai) such as graphic, table, title, etc (column 4, lines 50-55 of Sakai). The process of structurizing is a logical operation of flag values since said structurizing requires processing partial images based on their attributes in order to divide said partial images into areas (column 4, lines 50-59 of Sakai). Therefore, logical operations of the attributes (flag values) are performed in order to separate said partial images into different document image areas (column 4, lines 40-45 of Sakai).

Sakai does not disclose expressly that said second pixel density converting means switches between said logical arithmetic operating process of flag values of a

plurality of pixels near a target pixel (taught by Sakai), a process using a nearest neighboring pixel of the target pixel, and a process using a result obtained by counting flag data around the near pixels.

Kanno discloses performing a process using a nearest neighboring pixel (O_A) of the target pixel (column 4, lines 57-64 of Kanno).

Kanno further discloses a process using a result (column 6, lines 40-45 of Kanno) obtained by counting flag data around the near pixels (column 6, lines 46-50 of Kanno). A 4x4 (or 16 pixel) region is counted out (column 6, lines 46-50 of Kanno) and the flag data (character/line image, photograph image region, etc.) for said region is calculated (column 6, lines 40-45 of Kanno). Therefore, it is known that a single region, with each pixel containing the same flag data, has 16 pixels (column 7, lines 30-34 of Kanno). The result that a 4x4 pixel image region has the same particular flag data is used for the purpose of processing said image region (column 7, lines 56-59 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said second pixel density converting means taught by Sakai to perform a process using a nearest neighboring pixel of the target pixel, as taught by Kanno, or a process using a result obtained by counting flag data around the near pixels, as also taught by Kanno. The motivation for doing so would have been that the relevant features of the image data are based on the relation of the target pixel with the neighboring pixels (column 4, lines 62-64 of Kanno). Furthermore, switching between different processes is well-known in the

art and would obvious to one of ordinary skill in the art to perform if there is more than one possible process that is available to be implemented upon image data. Therefore, it would have been obvious to combine Kanno with Sakai to obtain the invention as disclosed in claim 16.

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and Okubo (US Patent 5,392,137).

Regarding claim 2: Sakai discloses that said flag data is a character flag indicative of a character image, and a figure flag indicative of a figure image (column 4, lines 49-54 of Sakai).

Sakai in view of Kanno does not disclose expressly a mesh flag indicative of a mesh image.

Okubo discloses detecting whether or not a pixel is in a mesh image region (column 7, lines 26-29 of Okubo) and storing data indicating whether or not said pixel is in a mesh image region (column 7, lines 29-32 of Okubo).

Sakai in view of Kanno is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an indicator corresponding to a mesh image region, as taught by Okubo, said indicator being a flag in the set of flag data taught by Sakai. The motivation for doing so would have been to correct for image artifact problems that affect a mesh image region of an

image (column 2, lines 60-64 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno to obtain the invention as specified in claim 2.

Regarding claim 3: Sakai in view of Kanno does not disclose expressly that when said flag data is a character flag, said output means performs a sharpness emphasis to said image data.

Okubo discloses that, for edges such as characters (column 10, lines 1-5 of Okubo), a filtering process is performed (column 9, lines 53-57 of Okubo), said filtering process being sharpness emphasis (column 4, lines 6-9 of Okubo).

Sakai in view of Kanno is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to sharpen character image data, as taught by Okubo. The motivation for doing so would have been to keep the outlines of small characters clear (column 10, lines 2-5 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno to obtain the invention as specified in claim 3.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810), Okubo (US Patent 5,392,137), and Harrington (US Patent 5,953,464).

Regarding claim 4: Sakai in view of Kanno does not disclose expressly that, when said flag data is a mesh flag, said output means performs a low pass filter process to said image data.

Okubo discloses detecting whether or not a pixel is in a mesh image region (column 7, lines 26-29 of Okubo) and storing data indicating whether or not said pixel is in a mesh image region (column 7, lines 29-32 of Okubo). Further, Okubo teaches that mesh image regions can be processed through a smoothing filter (column 1, lines 46-49 of Okubo) to eliminate undesired characteristics (column 1, lines 38-42 of Okubo).

Sakai in view of Kanno is combinable with Okubo because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an indicator corresponding to a mesh image region, as taught by Okubo, said indicator being a flag in the set of flag data taught by Sakai. Further, if said indicator indicates a mesh region, a smoothing filter is applied, as taught by Okubo. The motivation for doing so would have been to correct for image artifact problems that affect a mesh image region of an image (column 1, lines 38-42 of Okubo). Therefore, it would have been obvious to combine Okubo with Sakai in view of Kanno.

Sakai in view of Kanno and Okubo does not disclose expressly that said smoothing filter is a low pass filter.

Harrington discloses smoothing image data with a low pass filter (column 4, lines 47-50 of Harrington).

Sakai in view of Kanno and Okubo is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a low pass filter, as taught by Harrington, for the smoothing filter taught by Okubo. The motivation for doing so would have been to produce a smoother effect for the image data (column 4, lines 49-50 of Harrington). Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno and Okubo to obtain the invention as specified in claim 4.

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and McLeod (US Patent 5,778,092).

Regarding claim 5: Sakai in view of Kanno does not disclose expressly that said compression means performs an irreversible compression for making a deterioration of an image inconspicuous to the image data in consideration of human perception characteristics.

MacLeod discloses performing JPEG compression (column 4, lines 22-23 of MacLeod) for the portion of the document data corresponding to image data (foreground and background) (column 4, lines 13-17 of MacLeod). As is well-known in the art, JPEG compression is an irreversible compression that makes a deterioration of an image inconspicuous to the image data in consideration of human perception characteristics.

Sakai in view of Kanno is combinable with MacLeod because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to compress the bitmap image data taught by Sakai with JPEG compression, as taught by MacLeod. The motivation for doing so would have been to use a compression method suitable to the data to be compressed (column 4, lines 19-21 of MacLeod). Therefore, it would have been obvious to combine MacLeod with Sakai in view of Kanno to obtain the invention as specified in claim 5.

Regarding claim 6: Sakai in view of Kanno does not disclose expressly that said compression means performs a reversible compression to the flag data.

MacLeod discloses compressing the selector plane, which is used to flag which plane of image data to use (column 4, lines 45-47 of MacLeod), using a symbol-based compression (column 4, lines 23-25 of MacLeod). Symbol-based compression is well-known in the art to be a lossless, and therefore reversible, form of data compression.

Sakai in view of Kanno is combinable with MacLeod because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to compress the flag data taught by Sakai with reversible compression, as taught by MacLeod. The motivation for doing so would have been to use a compression method suitable to the data to be compressed (column 4, lines 19-21 of MacLeod). Flag data would inherently need to be compressed with a reversible compression technique since said flag data needs to be recreated perfectly after decompression. Therefore, it would have been

obvious to combine MacLeod with Sakai in view of Kanno to obtain the invention as specified in claim 6.

9. Claims 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and Harrington (US Patent 5,953,464).

Regarding claim 8: Sakai in view of Kanno does not disclose expressly that said first pixel density converting means uses one of a linear interpolating method and bicubic spline interpolation.

Harrington discloses using linear interpolation for changing image resolution (column 4, lines 25-27 of Harrington).

Sakai in view of Kanno is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use linear interpolation in said first pixel density converting means. The motivation for doing so would have been to reduce blocky artifacts (column 4, lines 18-21 of Harrington). Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno to obtain the invention as specified in claim 8.

Regarding claim 13: Sakai does not disclose expressly that said first pixel density converting means performs a converting process by performing an interpolating process from a plurality of pixels near a target pixel; and that said second pixel density converting means performs a logical arithmetic operating process of flag values of a

plurality of pixels near the target pixel, a process using a nearest neighboring pixel of the target pixel, or a converting process using a result obtained by counting the flag data of the pixels around the near pixels.

Kanno discloses performing a process using a nearest neighboring pixel (O_A) of the target pixel (column 4, lines 57-64 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said second pixel density converting means taught by Sakai to perform a process using a nearest neighboring pixel of the target pixel, as taught by Kanno. The motivation for doing so would have been that the relevant features of the image data are based on the relation of the target pixel with the neighboring pixels (column 4, lines 62-64 of Kanno). Therefore, it would have been obvious to combine Kanno with Sakai.

Sakai in view of Kanno does not disclose expressly that said first pixel density converting means performs a converting process by performing an interpolating process from a plurality of pixels near a target pixel.

Harrington discloses using linear interpolation for changing image resolution (column 4, lines 25-27 of Harrington).

Sakai in view of Kanno is combinable with Harrington because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an interpolating process from a plurality of pixels near a target pixel in said first pixel

density converting means. The motivation for doing so would have been to reduce blocky artifacts (column 4, lines 18-21 of Harrington). Therefore, it would have been obvious to combine Harrington with Sakai in view of Kanno to obtain the invention as specified in claim 13.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and Ishikawa (US Patent 5,729,664).

Regarding claim 12: Sakai in view of Kanno does not disclose expressly that said output means changes color conversion coefficients in accordance with the flag data and performs a color converting process of the image data.

Ishikawa discloses changing the color conversion coefficients (column 10, lines 29-35 of Ishikawa) in accordance with flag data (column 10, lines 18-23 of Ishikawa) and performing a color converting process of the image data (column 10, lines 47-52 of Ishikawa).

Sakai in view of Kanno is combinable with Ishikawa because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to perform the color conversion processing of the image data in accordance with the flag data, as taught by Ishikawa. Since color conversion is performed to create the output, said color conversion would be performed by said output means. The motivation for doing so would have been to be able to convert between a plurality of different color spaces

(column 3, lines 9-14 of Ishikawa), such as the color spaces for each different type of image data. Therefore, it would have been obvious to combine Ishikawa with Sakai in view of Kanno to obtain the invention as specified in claim 12.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai (US Patent 6,735,740 B2) in view of Kanno (US Patent 5,260,810) and Sekine (US Patent 5,719,967).

Regarding claim 14: Sakai in view of Kanno does not disclose expressly that, in the case where said input means inputs data described by a page description language from a computer, said generating means generates the flag data on the basis of attribute information of the page description language.

Sekine discloses using page description language for the image data (column 6, lines 56-57 of Sekine), detecting the attributes stored in said page description language (column 6, lines 56-60 of Sekine), and supplying said attributes to an image processing apparatus (column 6, lines 60-62 of Sekine).

Sakai in view of Kanno is combinable with Sekine because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use page description language as the input data and provide attribute data from the page description language data, as taught by Sekine, said attribute data being provided as the flag data taught by Sakai. The motivation for doing so would have been to be able to provide both the image data and the attribute data at once (column 6, lines 60-62 of

Sekine), instead of having to compute the flag data from the image data. Therefore, it would have been obvious to combine Sekine with Sakai in view of Kanno to obtain the invention as specified in claim 14.

Regarding claim 19: Sakai discloses an image processing apparatus (figure 5 of Sakai). Further details of said apparatus are shown in figure 9 (column 3, lines 35-36 of Sakai), figures 24-26 (column 4, lines 7-14 of Sakai) and figure 32 of Sakai (column 4, lines 30-31 of Sakai).

Said apparatus comprises input means (figure 32(65) and column 15, lines 13-17 of Sakai) for inputting image data (column 5, lines 27-30 of Sakai).

Said apparatus comprises analyzing means (figure 5(11) of Sakai) for analyzing data inputted by said input means (figure 8 and column 6, lines 23-32 of Sakai); rasterizing said data into image data in a bitmap format (column 7, lines 1-3 and lines 8-11 of Sakai); and obtaining flag data indicating an attribute (column 6, lines 15-18 of Sakai) of an image corresponding to the image data from the image data (figure 6 and column 6, lines 21-26 of Sakai).

Said apparatus further comprises a first storage means (figure 10C("Bitmap Data") of Sakai) for storing the read image signals and the image data in the bitmap format rasterized by said analyzing means (column 7, lines 7-10 of Sakai). Said first storage means corresponds to the section of computer memory used to store the bitmap data, as shown in figure 10C of Sakai.

Said apparatus further comprises second storage means (figure 10C("Attribute") of Sakai) for storing the flag data generated by said analyzing means (column 7, lines 1-

5 of Sakai). Said second storage means corresponds to the section of computer memory used to store the attribute data, as shown in figure 10C of Sakai.

Said apparatus further comprises first pixel density converting means (figure 32 (61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting said image data at a designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). Said first pixel density converting means corresponds to the section of the CPU (figure 32(61) of Sakai), along with the associated embodied computer programs (column 15, lines 17-20 of Sakai), that perform the functions of said first pixel density converting means.

Said apparatus further comprises second pixel density converting means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for pixel density converting the flag data at a same magnification as the designated magnification (figure 13(S36) and column 8, lines 57-62 of Sakai). The partial image, which includes the attribute (flag) data (figure 10C of Sakai), is displayed at a specified magnification (column 8, lines 57-62 of Sakai). Therefore, said flag data is decompressed at the same magnification as the designated magnification since said flag data is directly associated with said partial image data. Said second pixel density converting means corresponds to the section of the CPU (figure 32(61) of Sakai), along with the associated embodied computer programs (column 15, lines 17-20 of Sakai), that perform the functions of said second pixel density converting means.

Said apparatus further comprises control means (figure 32(61(portion)) and column 15, lines 17-20 of Sakai) for reading out the image data stored in said first

storage means and the flag data stored in said second storage means (column 7, lines 29-33 of Sakai), converting pixel densities of said read-out data by said first and second pixel density converting means (column 8, lines 57-62 of Sakai), and thereafter, processing the image data on a pixel unit basis in accordance with the flag data (column 8, lines 52-55 of Sakai). In order to restore the partial image (column 8, lines 52-55 of Sakai) each pixel would have to be processed in some form. The CPU (figure 32(61) of Sakai) controls the overall apparatus and performs the method of said apparatus (column 15, lines 17-20 of Sakai). Therefore, the control means is the portion of the CPU that performs the functions of said control means listed above.

Sakai does not disclose expressly reading means for color separating an original image and reading as color digital signals of each pixel; that said input data is described by a page description language input from a computer; that said analyzing means generates attribute information of the rasterized image data as flag data; that said read image signals stored in said first storage means are color image signals of R, G and B; detecting means for detecting a feature amount of each pixel of the original image in parallel with the reading operation of the original by said reading means; generating means for generating flag data for identifying an attribute of the pixel from the detected feature amount; that said second storage means also stores the flag data generated by said generating means; and that said control means transfers the processed image data to a printer and allows said printer to form a color image.

Kanno discloses reading means (figure 2(1) of Kanno) for color separating an original image and reading as color digital signals of each pixel (column 3, lines 19-22 and column 9, lines 51-54 of Kanno).

Kanno further discloses generating means (figure 1(10(portion)) of Kanno) for generating data indicative of the attribute of an image corresponding to the image data (column 6, lines 35-38 and lines 40-45 of Kanno); and that said image data is color image data (column 9, lines 51-54 of Kanno), specifically R, G and B color signals (column 9, line 53 of Kanno).

Kanno further discloses detecting means (figure 1(10(portion)) of Kanno) for detecting a feature amount of each pixel of the original image in parallel with the reading operation of the original by said reading means (column 6, lines 35-38 and lines 40-45 of Kanno). Said generating means is the portion of the circuitry of the pattern feature detector (figure 1(10) of Kanno) that produces the actual feature amount signal (figure 1(101) of Kanno) that is output and said detecting means is the portion of said pattern feature detector that performs the calculations to detect said feature amount.

Kanno further discloses generating attribute information of the rasterized image data (column 6, lines 40-45 of Kanno); transferring the processed image data to a printer (column 9, lines 37-39 of Kanno); and allowing said printer to form a color image (column 9, lines 37-39 and lines 51-54 of Kanno).

Sakai and Kanno are combinable because they are from the same field of endeavor, namely digital image processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to read in and process color image

data; to detect and generate the data indicative of the attributes of an image; and to transfer the processed data to a printer to be printed, as taught by Kanno, said indicative data being the flag data taught by Sakai. The flag data generated by said generating means would also be stored in the second storage means taught by Sakai since flag data from said analyzing means is stored in said second storage means. The motivation for doing so would have been that the value of the parameter used to determine the feature of the image region can be used in determining the amount of correction required (column 6, lines 58-62 of Kanno) and to realize color processing (column 9, lines 51-54 of Kanno), which is desirable in image processing if there are color images to be input and processed. Therefore, it would have been obvious to combine Kanno with Sakai.

Sakai in view of Kanno does not disclose expressly that said input data is described by a page description language input from a computer.

Sekine discloses using page description language for the image data (column 6, lines 56-57 of Sekine), detecting the attributes stored in said page description language (column 6, lines 56-60 of Sekine), and supplying said attributes to an image processing apparatus (column 6, lines 60-62 of Sekine).

Sakai in view of Kanno is combinable with Sekine because they are from the same field of endeavor, namely digital image data processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use page description language as the input data and provide attribute data from the page description language data, as taught by Sekine, said attribute data being provided as

the flag data taught by Sakai. The motivation for doing so would have been to be able to provide both the image data and the attribute data at once (column 6, lines 60-62 of Sekine), instead of having to compute the flag data from the image data. Therefore, it would have been obvious to combine Sekine with Sakai in view of Kanno to obtain the invention as specified in claim 19.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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James A. Thompson
Examiner
Art Unit 2624

JAT
3 September 2004

THOMAS D. LEE
PRIMARY EXAMINER